SECTION 03345: CONCRETE FINISHING

PART 1 – GENERAL

1.01   REFERENCE STANDARDS

Conform with requirements of the following Reference Standards or as modified and supplemented hereinafter.

      A.   ACI Specifications for Structural Concrete for Buildings, ACI 301

      B.   ACI Recommended Practice for Cold Weather Concreting, ACI 306

      C.   ACI Recommended Practice for Hot Weather Concreting, ACI 605

1.02   QUALITY ASSURANCE

Concrete Work: Concrete work where indicated to be exposed is architecturally finished concrete; special care must be taken to provide specified, finished surfaces without gravel pockets, and other defacements. Engineer shall inspect concrete after removal of forms and before concrete repair work begins.

1.03   PROTECTION

Protect persons and adjacent materials and finishes from dust, dirt and other surface or physical damage during finishing operations, including materials driven by wind.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

3.01   REPAIRS

      A.   Immediately after removal of forms, cut back ties and inspect surfaces for defects. Repair or patch defects only after defects are inspected by the Engineer and then only with his permission. Do all cutting and repair within 48 hours after removal of forms; cure repairs same as new concrete.

B.   Defective Areas: Where patches are allowed, repair and patch areas; they must match surrounding areas in color and texture so as to be indistinguishable after completion, including curing and finishing. Determine mix for color by trial mixes before patching; after initial cure, dress patch or repair area mechanically or by hand for texture match.

3.02   FINISHES FOR FORMED SURFACES

A.   Rough Form Finish: Provide for surface of walls and footings adjacent to grade or below grade. This is the concrete surface having texture imparted by form facing material use with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.

B.   Smooth Formed Finish: Provide a smooth formed finish on formed concrete surfaces exposed to view. This is an as-cast concrete surface obtained with selected form facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Remove fins and other projections completely and smoothed. Repair and patch honeycombs and defective areas as directed by the Engineer.

C.   Sacked Finish:

1.   On all designated surfaces of the exposed concrete, provide a sacked finish by coating the concrete with sacking mortar. Sacking of patched or defective concrete surfaces may be required by the Engineer for areas not otherwise already requiring this work.

2.   Repair and patch tie holes, honeycombs and defective areas and trowel to smooth finish. Remove fins and other projections completely and smoothed.

3.   Thoroughly wet surface to prevent absorption.

        4.   Coat entire surface with sacking mortar as soon as surface of concrete approaches surface dryness.

        5.   Thoroughly and vigorously rub mortar over area with clean burlap pads to fill all voids.

        6.   While mortar is still plastic but partially set (so it cannot be pulled from voids), sack-rub surface with dry mix of sacking mortar (leave out water). There should be no discernible thickness of mortar on concrete surface, except in voids; all surfaces should be uniformly textured.

        7.   Immediately begin a continuous moist cure for 72 hours.

D.   Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.03   FINISHES FOR UNFORMED SURFACES

A.   Screed all slabs, for whatever finish, to true levels or slopes, work surfaces only to the degree required to produce the desired finish. Do no finishing in areas where water has accumulated; drain and re-screed. In no case use cement and sand sprinkling to absorb moisture. Carefully finish all joints, including tool joints and expansion joints, edges with proper tools, and to the radii specified on Drawings unless otherwise specified.

B.   Broom Finish: Apply a non-slip broom finish to all exterior concrete slabs, stairs, walks, and ramps, and elsewhere as indicated. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route.

C.   Defective Work: Remove and replace when directed by the Engineer, surfaces which show excessive shrinkage cracks.

3.04   CURING

A.   Protect freshly deposited concrete from premature drying and excessively hot or cold temperatures; maintain minimal moisture loss at relatively constant temperature for necessary hydration time and proper relatively constant temperature for necessary hydration time and proper hardening of concrete.

B.   Duration of Curing: In addition to overnight initial curing, continue final curing operations until the cumulative number of days or fractions thereof, not necessarily consecutive, during which temperature of the air in contact with concrete is above 50°F equals seven days; if high-early strength concrete has been used, continue final during operation for three days total calculated as before. Take care to prevent rapid drying at the end of the curing period. If early removal of forms is approved and forms are removed during the curing period apply one of the curing methods specified in Reference Standards and continue curing for the remainder of the required curing period.

3.05   INSPECTION

Contractor shall notify Engineer that they are starting concrete finish repair work at least 48 hours prior to the beginning of work.

3.06   CLEANING

Leave premises clean and free of residue from work in this section.

END OF SECTION 03345